



BUYER'S GUIDE TO

MUSIC HARDWARE AND SOFTWARE

MAKING MUSIC WITH YOUR COMPUTER
IS AS EASY AS A ONE, AND
A TWO, AND A THREE, AND A FOUR...

BY JOEY LATIMER

"That sounds like a mosquito!" I was told the first time I attempted to make music on a computer. Hearing that after several hours of programming made me want to scream. "If only I had a computerized synthesizer," I thought to myself. "I'd blow the critics away!"

Three years later, almost any computer user can generate computer music that *will* "blow the critics away!" Playing music with a computer no longer is a programmer's chore. It's become as easy as gliding your fingers across a keyboard, wiggling a joystick, or tickling a touch pad.

With today's music software and hardware, you can turn your computer into a synthesizer or composing tool. Your computer can tutor you in music theory and concepts, or play computerized renditions of your favorite songs. You're able to practice composing and playing songs using an add-on keyboard or your computer's own keyboard. When you're ready, you can record a song.

To get the right texture in your music, some music software and hardware let you pick different instruments for your orchestra. You can fix mistakes before anyone hears them. And best of all, when you've finished recording your song, you can save it on your own disk album and play it back for family and friends . . . all in the same day!

Sound farfetched? Expensive? Amazingly, not so. Check out the Music Software and Music Hardware charts on the next pages. Products are listed by key features such as price, compatibility, ease of use, and description/comments. Manufacturer information also is provided. The text will help you evaluate which products on the charts are best for you and your family.

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ILLUSTRATION BY AKIO MATSUYOSHI

MUSIC SOFTWARE

Continued on next page.

COMPANY	PRODUCT	HARDWARE REQUIRED	COMMENTS	EASE OF USE	# VOICES
Access Software, Inc. 3678 W. 2100 S. Salt Lake City, UT 84120 (801) 973-0123	MASTER COMPOSER \$34 Synthesizer and composing tool	Commodore 64; printer optional	Features powerful sequencer. Enter and save sheet music, or compose own.	DIFFICULT	3
Activision 2350 Bayshore Frontage Road Mountain View, CA 94043 (415) 960-0410	THE MUSIC STUDIO \$29.95 Synthesizer and composing tool	Commodore 64 plus joystick or KoalaPad; printer optional	Features easy-to-use animated screens and icons.	EASY	3
Artworx 150 N. Main St. Fairport, NY 14450 (800) 828-6574	ALLEGRO \$39.95 Synthesizer and composing tool	Commodore 64; game paddles and printer optional. Planned for Macintosh	Features comprehensive editing and compiling system.	DIFFICULT	3
Algo-Rhythm Software 176 Mineola Blvd. Mineola, NY 11501 (800) 645-4441	CANTUS, THE MUSIC IMPROVISER \$54 Educational/game	Commodore 64	Plays randomly generated music using "patches" user creates.	AVERAGE	3
Alfred Publishing 15335 Morrison St. Sherman Oaks, CA 91403 (818) 995-8811	MUSIC MADE EASY \$29.95 Educational	Apple II series; Commodore 64	Teaches music theory via drills and testing.	EASY	1
Atari Corp. 1312 Crossman Road P.O. Box 61657 Sunnyvale, CA 94088 (408) 745-4851	MUSIC II, RHYTHM AND PITCH Under \$25 Educational	Atari 800/XL/XE, 16K	Teaches rhythm and pitch via drill and practice.	EASY	1
	MUSIC COMPOSER Under \$25 (cartridge) Composing tool	Atari 800/XL/XE, 16K	Enter, arrange, and edit music via menu choices.	AVERAGE	4
Blackhawk Data Corp. 307 N. Michigan Ave. Chicago, IL 60601 (312) 236-8473	TUNESMITH/PC \$49.95 Synthesizer and composing tool	IBM PC/PCjr, 96K 1	Lets user edit music-definition language of PC.	AVERAGE	1
Broderbund 17 Paul Drive San Rafael, CA 94903-2101 (415) 479-1170	THE MUSIC SHOP \$44.95 Synthesizer and composing tool	Commodore 64; joystick and printer optional	Features icons, windows, and full-page music scores.	EASY	3
ComputerWare P.O. Box 668 Encinitas, CA 92024 (619) 436-3512	SYNTH 77 \$24.95 (cassette); \$27.95 (disk) Synthesizer	TRS-80 CoCo, 32K	Turns keyboard into a 2-octave piano. Choice of 12 octaves.	EASY	1
Electronic Courseware Systems 1210 Lancaster Drive Champaign, IL 61821 (217) 359-7099	MUSICAL STAIRS \$29.95 Educational/game	Apple II series, 48K; Commodore 64; IBM PC/PCjr, 128K	Teaches concept of intervals via drill-and-practice game.	EASY	1
Electronic Arts 2755 Campus Drive San Mateo, CA 94403 (415) 571-7171	MUSIC CONSTRUCTION SET \$22.95-\$39.95 Synthesizer and composing tool	Apple II plus/IIe/IIc, 48K; Macintosh; Atari, 48K; Commodore 64; IBM PC/PCjr 128K; joystick, KoalaPad, printer, and Mockingboard (Apple only) optional	Lets you cut, paste, and edit songs by moving icons around screen.	EASY	2-6
EnTech Software P.O. Box 185 Sun Valley, CA 91353 (818) 768-6646	ADD MUS'N \$39 Programmer's utility	Commodore 64 and Studio 64; Music Mate keyboard optional	Converts Studio 64 files for use in your own programs.	AVERAGE	3
	STUDIO 64 \$39 Synthesizer and composing tool	Commodore 64; Music Mate keyboard optional	Converts computer keyboard into piano keys.	EASY	3
Future Vision P.O. Box 34 N. Billerica, MA 01862	VIDEO TUNES \$34.95 (cassette) Composing tool	ADAM	Uses joystick control to place and edit notes on a staff.	AVERAGE	3
Hayden Software 600 Suffolk St. Lowell, MA 01854 (800) 343-1218	MUSIC WORKS \$79.95 Synthesizer and composing tool	Macintosh plus mouse; printer optional	Uses Macintosh's icons, windows, and high resolution to create quality graphics and music in a construction-set format.	AVERAGE	4
Koala Technologies 2065 Junction Ave. San Jose, CA 95131 (800) KOA-BEAR	SPIDER EATER \$29.95 Educational/game	Commodore 64 plus KoalaPad	Teaches where notes are on a piano keyboard. Easy for children to create simple melodies and strange sounds.	EASY	1
Mastertronic International 7311B Grove Road Frederick, MD 21701 (301) 695-8877	MAKE MUSIC WITH MISTERTRONIC \$9.99 Composing tool	Commodore 64; joystick and printer optional	Includes five preset instrument sounds.	AVERAGE	1
Melodian Inc. 115 Broadway, Suite 1202 New York, NY 10006 (800) MEL-ODIA	CONCERT MASTER \$39.95 Synthesizer and composing tool	Commodore 64; Melodian keyboard optional	Features real-time three-track recording, including a metronome, variable tempo, and an animated musical staff.	AVERAGE	3
	RHYTHM MASTER \$39.95 Educational/game	Commodore 64; Melodian keyboard optional	Teaches rhythm patterns in a game format that gets more difficult as play progresses.	AVERAGE	1
Mindscape, Inc. 3444 Dundee Road Northbrook, IL 60062 (800) 221-9884	BANK STREET MUSIC WRITER \$49.95 Synthesizer and composing tool	Atari, 48K; Commodore 64. Planned for Apple II series, IBM.	Lets you compose, edit, and play back songs. Tone shaping is represented by charts. Needs no prior musical knowledge.	AVERAGE	3-4
NewArts Co. P.O. Box 2700 Huntington Beach, CA	GUJAR CHORD POWER \$39.95 Educational	Commodore 64	Displays more than 8,000 chords with sound. Built-in tutorial teaches chord construction. Best for guitar players.	EASY	1
Passport Designs 625 Miramontes St., No. 103 Half Moon Bay, CA 94019 (415) 726-0280	MACMUSIC \$49.95 Synthesizer and composing tool	Commodore 64 plus joystick; may work with Soundchaser 64	Makes composing as simple as drawing. As you draw composition—you hear it!	EASY	3

All software on disk, unless otherwise noted.

	SAVES/LOADS PRESET SOUNDS	SAVES/LOADS SONGS	ACCOMPANIMENT	INSTRUMENTS	COLOR GRAPHICS	RECORDS LIVE	SEQUENCES NOTES	TUTORIALS	PROGRAMMING INFO	PRINTS SCORES
	Y	Y	N	Y	N	Y	Y	Y	Y	Y
	Y	Y	N	Y	Y	Y	Y	N	N	Y
	Y	Y	Y	Y	N	N	Y	N	Y	Y
	Y	Y	N	Y	Y	N	N	Y	N	N
	N	Y	N	Y	N	N	Y	N	Y	Y
	N	N	N	N	N	N	N	Y	N	N
	N	Y	N	N	Y	N	Y	N	Y	N
	N	Y	N	N	Y	N	N	Y	Y	N
	Y	Y	N	Y	Y	N	Y	N	N	Y
	Y	Y	N	Y	N	Y	Y	Y	Y	N
	N	N	N	N	Y	N	N	Y	N	N
	N	Y	Y	N	N	N	Y	N	N	Y
	N	Y	N	N	N	N	N	N	Y	N
	N	Y	Y	Y	Y	Y	Y	Y	N	N
	N	Y	N	N	Y	N	Y	N	N	N
	Y	Y	N	Y	N	Y	Y	Y	N	Y
	N	N	N	N	Y	N	N	Y	N	N
	Y	Y	N	Y	Y	N	Y	N	N	Y
	Y	Y	Y	Y	Y	Y	N	Y	N	N
	N	N	Y	Y	Y	N	N	N	N	N
	Y	Y	N	Y	Y	N	Y	N	N	Y
	N	N	Y	N	Y	N	N	Y	N	N
	Y	Y	Y	N	Y	Y	Y	N	N	N

IS YOUR COMPUTER 'MUSICAL'?

There's no getting around the fact that making music with your computer depends on which computer you own. If you own a Commodore 64, you already have a powerful musicmaker in your home. That's because the C 64 contains what's called a SID (Sound Interface Device) chip that acts as a built-in programmable synthesizer and offers eight octaves of high-quality sound and three voices. Because of the SID chip, C 64 owners will find a multitude of compatible music products listed in the Music Hardware and Music Software charts. In fact, most of the under-\$200 add-on keyboards FAMILY COMPUTING took a look at work with the C 64.

That's great news for Commodore 64 users, but other computer owners shouldn't despair. Atari (four voices), Macintosh (four voices), VIC-20 (three voices), and TI/99-4A computers (three voices) also come equipped with sound chips, although less sophisticated than the SID chip.

Apple II series and TRS-80 Models III and 4 users have to work harder to make beautiful music because their machines have no true built-in sound capabilities. Apple and TRS-80 Model 4 computers come equipped with tiny built-in speakers, but their music quality is poor. Radio Shack's TRS-80 Model III computers don't have a speaker at all. They can be programmed to send music through the cassette port, but the musical results aren't so hot. Musical Apple and TRS-80 owners can upgrade their machines to the C 64's music level by adding an integrated circuit board that contains sound chips and output jacks for plugging into a stereo (we list several in the Music Hardware chart). For example, adding a Mockingboard card to an Apple improves the sound considerably and increases the number of voices from 1 to 6.

The new Yamaha Music Computer and Atari's ST computer both offer substantial music capabilities via their built-in MIDI interfaces (see *The Future of Computer Music*, page 38).

SOFTWARE THAT'S MUSIC TO YOUR EARS

With or without an add-on keyboard, it's music software that really makes your computer hum. Software packages fall into several categories. Some programs turn your computer into a sophisticated synthesizer or composing tool. Others are educational: pure music theory drill-and-practice or music tutorials (for more on this category, refer to July FAMILY COMPUTING, page 31). Some combine music education or composing lessons with a game format, and a few are technical utilities for musical programmers.

To evaluate which program is best for you or your family, first read the comments column in the Software Chart, and the Yes and No columns that detail specifics. Keep in mind that ease of use doesn't refer to the quality of the music the program can generate, but indicates how quickly the average computer user will be able to use the program.

Knowledge of the following terms will help you pinpoint the best software selection for your musical/computing needs:

Voices: The number of musical voices listed in this column of the Music Software chart equals the number of parts, or tracks, which can be used to create a musical arrangement using the program highlighted. The C 64, for instance, can produce three-part harmony or record a maximum of three tracks, so most software for the C 64 uses those three voices. Atari computers, however, have four voices, and not all music software uses them all.

Instruments: Some music programs have factory preset instrument sounds built in. For example, one program may offer guitar, piano, flute, and organ instrument sounds. That means you have only these instrument

MUSIC SOFTWARE Continued

COMPANY	PRODUCT	HARDWARE REQUIRED	COMMENTS	EASE OF USE	# VOICES	SAVE
Passport Designs 625 Miramontes St., No. 103 Half Moon Bay, CA 94019 (415) 726-0280	MONO/POLY SYNTHESIZER Included with Soundchaser 64 Synthesizer/educational	Commodore 64 plus Soundchaser 64 keyboard	Lets user create monophonic and polyphonic synthesized sounds.	EASY	1-3	N
Scarborough Systems 55 S. Broadway Tarrytown, NY 10591 (914) 332-4545	SONGWRITER \$39.95 Composing tool	Apple II series, 48K; Atari, 48K; Commodore 64; IBM PC (needs color graphics monitor adapter)/PCjr, 64K	Simple composing tool saves melodies and songs.	EASY	3	Y
Sequential Circuits 3051 N. First St. San Jose, CA 95134 (408) 946-5240	SONG BUILDER \$39.95 Composing tool	Commodore 64	Lets user overdub up to three layers of notes.	AVERAGE	3	Y
	SONG EDITOR \$39.95 Composing tool	Commodore 64	Displays songs written with <i>Song Builder</i> . Lets user edit them.	AVERAGE	3	Y
	SONG PRINTER \$39.95 Printing tool	Commodore 64	Lets user print out music in standard music notation.	AVERAGE	3	N
	SOUND MAKER \$39.95 Sound-making tool	Commodore 64	Provides 4-color graphic display that looks like front panel of synthesizer. Lets user change tone and volume of sound.	AVERAGE	3	Y
	MUSIC PROCESSOR \$24.95 Synthesizer and composing tool	Commodore 64; Incredible Music Keyboard and joystick optional	Includes powerful music editor with command language similar to BASIC.	AVERAGE	3	Y
Sight & Sound Music Software 3200 S. 166th St. P.O. Box 27 New Berlin, WI 53151 (800) 558-0910	MUSIC VIDEO KIT \$39.95 Educational/game	Commodore 64 plus joystick	Creates music videos including background scenes, actors, props, and music that user selects or writes with the program's help.	AVERAGE	3	N
	3001 SOUND ODYSSEY \$24.95 Synthesizer/educational	Commodore 64; Incredible Music Keyboard and joystick optional	Includes powerful synthesizer and in-depth tutorial on sound synthesis, and sequencer for recording.	AVERAGE	3	Y
	KAWASAKI SYNTHESIZER \$24.95 Synthesizer and composing tool	Commodore 64; Incredible Music Keyboard optional	Two-disk set includes "The Performer" and "The Composer." Futuristic graphics enhance music.	DIFFICULT	3	Y
	KAWASAKI RHYTHM ROCKER \$24.95 Synthesizer	Commodore 64; Incredible Music Keyboard optional	Enables user to play synthesizer to bass and drum patterns while watching hi-res graphics displays.	DIFFICULT	3	N
	ROCK 'N RHYTHM \$26.95 Composing tool	Atari, 48K; Commodore 64 plus joystick	Record songs in a simulated recording studio. Play back songs on a jukebox.	AVERAGE	3-4	Y
Spinnaker Software Corp. 1 Kendall Square Cambridge, MA 02139 (617) 494-1200	MUSIC MAESTRO \$34.95 Educational/game	Apple II series, 48K; color monitor recommended	Lets children 4-12 create tunes, learn note names, combine graphics with music.	EASY	1	N
Springboard Software 7807 Creekridge Circle Minneapolis, MN 55435 (800) 328-1223	SPEECH DEVELOPMENT SYSTEM \$39.95 Utility software	Apple II plus/IIe, 64K plus Mockingboard stereo/synthesizer card	Software utility allows user to modify phoneme string created by a text-to-speech algorithm.	AVERAGE	6	Y
Sweet Micro Systems, Inc. 50 Freeway Drive Cranston, RI 02920 (800) 341-8001	DEVELOPER'S TOOLKIT \$29.95 Composing tool	Same as above	Helpful utility program eases the development of music and sound, and speech enhanced software.	AVERAGE	6	Y
	ORCHESTRA-90 \$79.95 Synthesizer	TRS-80 CoCo, 16K; Models I/III/4, 48K	Connects computer to stereo; lets you create, play, and edit music. Built-in communications package for CoCo.	AVERAGE	5	N
Tandy/Radio Shack 1800 One Tandy Center Ft. Worth, TX 76102 (817) 338-2395	LIGHT PEN MUSIC COMPOSER AND PRINTER DUMP Included with Music Port Synthesizer and composing tool	Commodore 64 plus Music Port keyboard, and Light Pen	Lets user select from icon-based menu; build, edit, save measures; and record up to 10 minutes of music.	EASY	3	Y
Triton Products P.O. Box 8123 San Francisco, CA 94128 (800) 227-6900	MUSIC MAKER \$15.95 (cartridge) Composing tool	TI-99/4A (cartridge); storage system recommended	Compose by moving notes on a staff and watch notes on sound frequency chart.	AVERAGE	3	N
Waveform Corp. 418 N. Buchanan Circle, No. 12 Pacheco, CA 94553 (415) 825-1722	MUSICALC 1. SYNTHESIZER AND SEQUENCER \$29.95 Synthesizer and composing tool	Commodore 64; ColorTone Keyboard optional	Holds 32 preset songs and sound "patches" at one time. Lets user record notes while performing or while sequencing one note at a time.	DIFFICULT	3	Y
	MUSICALC 2. SCOREWRITER \$19.95 Printing utility	Commodore 64 plus <i>MusiCalc 1</i> software	Prints scores from songs created using <i>MusiCalc 1</i> . Lets two or more Commodore 64s run <i>MusiCalc</i> at the same time to synchronize.	DIFFICULT	0	N
	MUSICALC 3. KEYBOARD MAKER \$19.95 Composing tool	Commodore 64 plus <i>MusiCalc 1</i> software	Contains 70 preset scales and lets you create new scales in conjunction with <i>MusiCalc 1</i> .	AVERAGE	0	N
Yamaha International Corp. P.O. Box 6600 Buena Park, CA 90620 (714) 522-9011	FM VOICING PROGRAM \$50 Synthesizer and composing tool	Yamaha CX5M plus YK-01 or YK-10	Lets user load and save own instrument sounds.	DIFFICULT	8	Y
	FM MUSIC COMPOSER \$50 Synthesizer and composing tool	Yamaha CX5M plus YK-01 or YK-10	Displays staff on-screen for composing.	DIFFICULT	8	N
	FM MUSIC MACRO \$50 (cartridge) Synthesizer and composing tool	Yamaha CX5M; keyboard optional	Plug-in cartridge lets programmers add own sounds to own programs with their music computer.	DIFFICULT	8	N

All software on disk, unless otherwise noted.

VOICES	SAVES/LOADS PRESET SOUNDS	SAVES/LOADS SONGS	ACCOMPANIMENT	INSTRUMENTS	COLOR GRAPHICS	RECORDS LIVE	SEQUENCES NOTES	TUTORIALS	PROGRAMMING INFO	PRINTS SCORES
3	N	N	N	Y	N	N	N	Y	Y	N
	Y	Y	N	N	Y	Y	N	N	N	N
	Y	Y	Y	N	N	Y	N	Y	N	N
	Y	Y	Y	N	N	N	Y	Y	N	N
	N	Y	N	N	N	N	N	Y	N	Y
	Y	N	N	Y	N	N	N	Y	N	N
	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
	N	Y	Y	N	Y	Y	N	N	N	N
	Y	Y	N	Y	Y	Y	Y	Y	N	N
	Y	Y	Y	Y	Y	Y	Y	N	N	N
	N	Y	Y	Y	Y	Y	N	N	N	Y
4	Y	Y	Y	Y	Y	Y	Y	N	N	N
	N	Y	N	N	Y	Y	Y	Y	N	N
	Y	N	N	N	N	N	N	Y	Y	N
	Y	N	N	N	N	N	N	Y	Y	N
	N	Y	N	Y	N	N	Y	N	N	N
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	N	Y	N	N	Y	N	Y	N	N	Y
	Y	Y	Y	Y	Y	Y	Y	N	Y	N
	N	N	N	N	Y	N	N	Y	N	Y
	N	Y	N	N	Y	N	N	Y	N	N
	Y	T	Y	Y	Y	Y	Y	Y	N	N
	N	Y	N	N	Y	N	Y	N	Y	Y
	N	N	Y	N	Y	N	Y	N	Y	N

sounds available for playback in your compositions. A "Y" in this column means you have the flexibility to create your own instrument sounds and change those sounds until they're exactly as you wish. Creating and manipulating sounds usually is done by changing settings on your screen while listening to the results.

Saves/Loads Sounds: A program that saves and loads individual sounds lets the user create libraries of instrument sounds for later use. These sounds can be reloaded and used in the performance and playback of compositions. If a program doesn't save instrument sounds, those sounds are lost whenever the computer is turned off.

Saves/Loads Songs: This feature lets the user save entire compositions (as opposed to individual instrument sounds). This save step comes after the user records or sequences the song.

Accompaniment: A "Y" in this column means the music program offers automatic computer accompaniment. You've probably seen organs and electronic keyboards that play bass, drums, and rhythm while you play along. In many programs, your computer can provide this kind of accompaniment.

Graphics: If the music program you're interested in has a "Y" in this column, it's likely you'll need a color monitor to get the most out of the program. Parts of programs with color graphics display have been known to disappear on monochrome screens.

Records: Many frustrated musicians have a secret desire to go to a recording studio and record a song "live." When a program has a "Y" in this column, the recording studio comes right into your home! Software that records live performances can record a song as you play it, and then play it back for you.

Sequences: With many music programs, it's also possible to sequence notes individually. This means you're able to arrange the notes you want, place them where you want them (visually on a staff, for instance), and have the computer play back the song when you're ready (as opposed to recording everything at once, live). With some programs, you move the notes onto a graphic display of a music staff using a joystick, KoalaPad, or mouse. Other programs use the keyboard to sequence a song.

Tutorials: Many programs featured in the software chart contain built-in tutorials. If a program offers a help screen or a tutorial covering subjects necessary for the program operation, you'll find a "Y" in this column. Educational games, by their inherent nature, also earn a "Y" in this column.

Programming Info: One of a best ways to make your own game programs shine is to add music to them. Software packages with a "Y" in this column include documentation for programmers who want to add freshly synthesized creations to their own programming efforts.

Prints Scores: One of the most popular features among the new composing programs is score printing. If you're running a program with a "Y" in this column, and you have a compatible printer with graphics capabilities, you can print sheet music of your compositions. For serious musicmakers, having the printed sheet music can be a big help when editing a large composition.

BLOW THE CRITICS AWAY

Once you've chosen product(s) suitable for your own musicmaking tastes, you'll find yourself jamming in no time. I know several of the products highlighted on these pages have proven invaluable in my own computer music endeavors. My critics (family and friends within earshot) have forgotten my mosquito-buzzing musical efforts of the past. Now they listen to my computer music and say, "That sounds a lot like *2001: A Space Odyssey*." I just smile.

THE FUTURE OF COMPUTER MUSIC

If you're interested in computers and music, you'll be hearing the word "MIDI" a lot in the future. MIDI (Musical Instrument Digital Interface) already is a big deal in the recording industry. A MIDI is an interface that links different makes and models of professional music equipment and synthesizers.

When a professional musician finishes a performance on a MIDI-equipped keyboard, he or she can go to a MIDI-equipped computer and analyze the information (the speed and pressure at which the keys were hit, which keys were pressed, etc.). The musician then can change, save, print, or reject the sounds.

On the home front, a MIDI interface makes it possible, for example, to link a Casio keyboard to an Atari computer. The Atari will store music, print scores, and provide video graphics, while the Casio hums out a tune using its built-in instrument sounds and rhythm patterns.

Several companies market MIDI interfaces for Apple, Atari, Commodore, and IBM computers right now in the

\$100 to \$200 price range. The real cost comes in when you consider the price of a MIDI-equipped keyboard. The least expensive one we know of is the Casio CZ-101, and it retails for about \$500! Industry insiders, however, expect the price of MIDI interfaces and of MIDI-equipped computers to come down as home demand increases, so don't be surprised if current software and hardware packages are revised to become MIDI-compatible.

In fact, MIDI interfaces already are being integrated into personal computers. Yamaha's Music Computer contains a hot on-board eight-voice synthesizer. This computer lets you interface with either MIDI-equipped keyboards or two Yamaha compatible keyboards (see *Music Hardware chart*). Atari's ST computer also boasts a MIDI interface and advanced music capabilities.

For more information on the MIDI standard, call or write Hybrid Arts, 11920 W. Olympic Blvd., Los Angeles, CA 90064; (213) 826-3777, or log on to the 24-hour MIDI bulletin board at (213) 826-4288. ☐

MUSIC HARDWARE

PRODUCT	COMPANY	DESCRIPTION	HARDWARE REQUIRED	EASE OF USE	COMPATIBLE SOFTWARE
COLORTONE KEYBOARD \$39.95	Waveform Corp. 418 N. Buchanan Circle No. 12 Pacheco, CA 94553 (415) 825-1722	25-key touch-sensitive keyboard. Full-size flat keys.† Plugs into joystick port. <i>ColorTone Keyboard</i> software included.*	Commodore 64	Easy	<i>MusiCalc 1*</i> <i>MusiCalc 2*</i> <i>MusiCalc 3*</i>
ECHO PLUS \$149.95	Street Electronics 1140 Mark Ave. Carpenteria, CA 93013 (805) 684-4593	Speech, music, and sound synthesizer card. Allows up to 6 voices. Requires stereo hookup.	Apple II plus/IIe, 64K; joystick or mouse optional	Average	<i>Music Construction Set*</i>
INCREDIBLE MUSICAL KEYBOARD \$29.95	Sight & Sound Music Software, Inc. 3200 S. 166th St. New Berlin, WI 53151 (800) 558-0910	24-key plastic keyboard. Half-size keys.† Fits over existing computer keyboard. <i>Incredible Musical Keyboard</i> software and two music books included.*	Commodore 64	Easy	<i>Music Processor*</i> <i>Music Video Kit*</i> <i>3001 Sound Odyssey*</i> <i>Kawasaki Rhythm</i> <i>Rocker*</i> <i>Kawasaki Synthesizer*</i> <i>Allegro*</i>
MELODIAN KEYBOARD \$99 (Keyboard) \$169 (Keyboard and Software)	Melodian, Inc. 115 Broadway No. 1202 New York, NY 10006 (212) 757-2287	40-key plastic keyboard. Full-size keys.† Comes with interfaces to plug into joystick and user ports. <i>Concert Master</i> , <i>Rhythm Master</i> software included.*	Commodore 64	Easy	<i>Concert Master*</i> <i>Rhythm Master*</i>
MOCKINGBOARD C \$179	Sweet Micro Systems, Inc. 50 Freeway Drive Cranston, RI 02920 (401) 461-0530 or (800) 341-8001	Stereo music and voice synthesizer card. Plugs into internal slot. Includes RCA interface cables for stereo hookup. Demonstration disk and text-to-speech algorithm included.	Apple II/II plus/IIe, 48K	Difficult	<i>Speech Development System*</i> <i>Developer's ToolKit*</i> <i>Music Construction Set</i>
THE MUSIC CARD MC1 \$75	ALF Products 1315 F Nelson St. Denver, CO 80215 (800) 321-4668	Internal nine-voice music synthesizer. Comes with software that lets Apple users enter musical compositions on disk. Songs can be played back through stereo system.	Apple II/II plus/IIe, 48K. Joystick optional	Easy	
MUSICMATE KEYBOARD \$99	Sequential Circuits 3051 N. First St. San Jose, CA 95134 (408) 946-5240	32-key plastic keyboard. Full-size keys.† Plugs into joystick port. One program included.*	Commodore 64	Easy	<i>Song Builder*</i> <i>Song Editor*</i> <i>Song Printer*</i> <i>Sound Maker*</i> <i>Add Mus'n*</i> <i>Studio 64*</i>
MUSIC PORT KEYBOARD \$119.95	Tech-Sketch Inc. 26 Just Road Fairfield, NJ 07006 (800) 526-2514	32-key plastic keyboard. Full-size keys.† Plugs into user port. <i>Light Pen Music Composer</i> and <i>Printer Dump</i> program included.*	Commodore 64	Average	
ORCHESTRA-90 \$79.95	Radio Shack/Tandy Corp. 1800 One Tandy Center Fort Worth, TX 76102 (817) 338-2395	Stereo music synthesizer module with percussion. Plugs into I/O bus connector. Requires stereo hookup. <i>Orchestra-90</i> software (cassette) included.*	TRS-80 Models III/4, cassette player	Average	
SOUNDCHASER 64 KEYBOARD \$100	Passport Designs 625 Miramontes St., No. 103 Half Moon Bay, CA 94019 (415) 726-0280	49-key plastic keyboard. Full-size keys.† Interface to plug into game port and jacks for stereo hookup included. <i>Monophonic</i> and <i>Polyphonic</i> software included.*	Commodore 64	Average	May work with <i>MacMusic*</i>
SOUNDMASTER II \$49.95	Kearsarge Industries 12310 Pincrest Road Reston, VA 22091 (703) 620-5760	Internal board enables Apples to produce arcade and some music sounds. Requires stereo hookup.	Apple II/II plus/IIe, 48K	Easy	
YAMAHA KEYBOARDS \$100 (YK-01) \$200 (YK-10)	Yamaha International Corp. P.O. Box 6600 Buena Park, CA 90620 (714) 522-9011	YK-10 keyboard has 49 full-size keys; the YK-01, 48 half-size keys.† They plug into the CX5M.	CX5M Music Computer	Difficult	<i>FM Voicing Program*</i> <i>FM Music Composer*</i> <i>FM Music Macro*</i>

*Software highlighted on chart, pages 34-37. †Key size based on piano keys. All software on disk, unless otherwise noted.